CLAIMS

I CLAIM:

1. A dynamic balancing system for a computer tomography gantry, the gantry rotating about a gantry axis and supporting components for acquisition of tomographic data, the balancing system comprising:

at least one electronically positionable weight attached to the gantry for movement with respect to the gantry according to a received position signal to correct imbalance in the gantry caused by variation in the components.

2. The dynamic balancing system of claim 1 including two electronically positionable weights, each attached at spatially separated points on the gantry, each receiving an independent position signal.

3. The dynamic balancing system of claim 3 wherein the two electronically positionable weights are positioned along lines of radius from the gantry axis that are perpendicular to each other.

4. The dynamic balancing system of claim 2 wherein each of the electronically positionable weights are movable along an independent weight axis, wherein the weight axes are perpendicular to each other.

5. The dynamic balancing system of claim 2 wherein each of the electronically positionable weights are movable along an independent weight axis and the weight axes are positioned radially with respect to the gantry axis.

6. The dynamic balancing system of claim 2 wherein each of the electronically positionable weights are movable along an independent weight axis, the weight axes positioned to be parallel to the gantry axis.

7. The dynamic balancing system of claim 2 wherein each electronically positionable weight is movable along two weight axes having components of motion parallel to the gantry axis and radial to the gantry axis, respectively, each receiving an independent position signal.

8. The dynamic balancing system of claim 1 wherein the positionable weight is movable along two different axes according to two independent position signals.

9. The dynamic balancing system of claim 8 wherein the two axes are perpendicular to each other.

10. The dynamic balancing system of claim 8 wherein one of the axes is oriented to be radial with respect to the gantry axis and one of the axes is oriented to be parallel to the gantry axis.

11. The dynamic balancing system of claim 1 further including means for communicating power to the electronically positionable weight during rotation of the gantry.

12. The dynamic balancing system of claim 1 including wherein the electronically positionable weight includes at least one electronic actuator for moving the electronically positionable weight upon receipt of power and holding the actuator in its last position when power is removed from the actuator.

13. The dynamic balancing system of claim 12 wherein the positioning signal is power to the electronic actuator.

14. The dynamic balancing system of claim 1 wherein the electronically positionable weight includes a mass mounted on a track for movement along an axis under the urging of an electronic motor.

15. The dynamic balancing system of claim 1 further including at least one gantry sensor detecting out of balance operation of the gantry and providing a signal to the electronically positionable weight so as to dynamically correct the imbalance.

16. The dynamic balancing system of claim 1 wherein the electronically positionable weights include attachment points for fixed weights augmenting the electronically positionable weight.

17. A method of balancing a computer tomography gantry, the gantry providing a gantry ring rotating about a gantry axis and supporting components for acquisition of tomographic data and including at least one electronically positionable weight attached to the gantry for movement with respect to the gantry and including at least one gantry sensor detecting out of balance operation of the gantry, the method comprising the steps of:

(a) rotating the gantry;

(b) measuring the balance of the gantry during rotation; and

(c) moving the electronically positionable weights so as to reduce the imbalance.

18. The method of claim 16 wherein the gantry is rotated at a predetermined speed used during the acquisition of computed tomography data.

19. The method of claim 16 wherein the step of measuring the balance of the gantry measures a parameter selected from the group consisting of: variation in-plane forces on the gantry, variations in out-of-plane forces on the gantry, and variations in acceleration of the gantry, and variation in force required to move the gantry.